TIME-DELAYED TRANSMITTED REFERENCE SPREAD SPECTRUM TRANSMITTER WITH DIGITAL NOISE GENERATOR

ABSTRACT OF THE DISCLOSURE

Circuits are provided for transmitted reference spread spectrum systems using a noise-like digital sequence with delayed replica. The circuits produce the digital spreading sequences at extremely high speed, and are capable of providing a great degree of signal spreading. A first embodiment is composed of a low speed section and a high-speed section. This embodiment allows for greater power efficiency without sacrificing sequence speed. In addition, the embodiment also allows shaping of the spectrum of the high-speed digital sequence. Further, this embodiment generates an m-sequence and its near delay by storing decimated pieces of the entire m-sequence over a plurality of end-around circulating shift registers or so-called ring counters. The ring counters can be run at low speed and there is no exclusive-oring operation. A time-delayed transmitted reference spread spectrum transmitter is provided using digital noise generators that are capable of very high speed operation.